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A Health needs assessment of children in a California state-funded preschool

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A HEALTH NEEDS ASSESSMENT OF CHILDREN IN A CALIFORNIA STATE-FUNDED PRESCHOOL

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By

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ABSTRACT

A HEALTH NEEDS ASSESSMENT OF CHILDREN IN

A CALIFORNIA STATE-FUNDED PRESCHOOL

by Katherine Waugh

This study assesses the health needs of low-income, culturally diverse children (N=63) enrolled in preschool for the first time between September 1991 and December 1992. Data were collected from existing cumulative records using a Data Collection Tool developed for this study. The variables included the following: dental, vision, and hearing assessments; a test for anemia (hemoglobin or hematocrit); height; weight; and immunization status.

The most frequently identified health needs were lack of current DPT, polio, and MMR immunizations; anemia; obesity; and dental caries. Less frequently reported health needs were vision and hearing abnormalities. Data regarding height, weight, dental assessment, and a test for anemia were not consistently recorded by the health care providers. Recommendations for programs and services to promote preschool children's health status are examined and suggestions for school nurse practice are proposed.

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TABLE OF CONTENTS

Page

LIST OF TABLES..... vii

LIST OF FIGURES..... viii

Chapter

1. INTRODUCTION..... 1

Research Question..... 4

Purpose and Significance..... 4

Definition of Terms..... 5

2. CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW.... 11

Conceptual Framework..... 11

Literature Review..... 14

Summary..... 19

3. RESEARCH DESIGN AND METHODOLOGY..... 20

Overview of the Study..... 20

Research Design..... 21

The Instrument..... 22

Data Collection Procedures..... 27

Analysis Procedures..... 28

4. ANALYSIS AND INTERPRETATION OF DATA..... 29

Demographics of the Sample..... 29

Report of the Health Variables..... 32

5. DISCUSSION..... 41

Summary..... 41

Conclusions..... 42

Chapter Page

Scope and Limitations..... 51

Recommendations for Future Research..... 52

Recommendations for School Nursing Practice... 55

REFERENCES..... 60

APPENDIXES

A. Data Collection Forms..... 66

B. Sample Growth Charts..... 70

C. Approval Letters..... 75

D. Ethnic and Language Codes..... 80

LIST OF TABLES

Table Page

1. Demographics of the Sample (N=63)..... 31
2. Report of Health Variables..... 34
3. Comparison of Rank Order of Health Needs in Preschool Sample (N=63) and Migrant Kindergartners (N=112) 40

LIST OF FIGURES

Figure Page

1. Sunrise Model..... 13

2. Distributions of Children in Sample in Good Physical Condition and of Children with Health Needs Identified..... 37

3. Rank Order of Percentages of Children with Abnormal Health Needs..... 38

Chapter 1

INTRODUCTION

In the United States, there has been a large influx of immigrants from Asian countries since the immigration laws were changed in 1966 (Policy Analysis for California Education [PACE], 1989, p. 17). Lin-Fu (1988) states that Asian and Pacific Islanders increased in population by 142% in the United States between the 1970 and the 1980 census. Many people from the Far East are living in the western half of the United States. It is projected that by the year 2000, more than half of California's children will be Hispanic (36%) or Asian (13%)(PACE, p. 22). According to Children Now (1991), in one northern California suburban county, 24% of the residents were under 18 years of age and 53% of the residents were children of color: Caucasian 47%, Latino 29%, African-American 4%, and Asian/Other 20%.

During the spring of 1992, a demographic study was conducted in a northern California suburban school district which projected that by the year 2000, the school district will have a combined ethnic population of 94% Asian and Caucasian (personal communication, T. M. Williams, September 29, 1992). The projections in the school district indicate that the English as a Second Language (ESL) program will continue growing 20% per year and will have 1,000 students enrolled by the year 2000.

The PACE report states that the increase in the non-white child population is due to immigration and the higher rate of fertility among those cultures (1989, p. 22). People of Hispanic and Asian descent are the portions of the population growing the fastest. However, within these racial and ethnic groups, the population of children is becoming more heterogeneous. People recently immigrating from Central America have changed the demographic characteristics of the Hispanic population. Of the established Asian groups, the Chinese, Filipino, Japanese, and Korean groups seem to be growing the most rapidly. Lin-Fu (1988) has stated that "the health problems and health care needs of Asian Pacific Americans are intimately related to many unusual population characteristics that are poorly understood" (p.19). As a result, there is limited evidence in the literature regarding the general health of preschool children from Asia and the Pacific Islands. Cultural values, education level, family income, and primary language vary from group to group. For these reasons, health education is difficult to plan and implement. Barriers are often created by problems in communication creating awkward situations.

It was reported in the Flinn Foundation Report (1989) on the health status of Arizona's school-aged children that health problems were easily treated when the children had

access to health care; however, many of the children were uninsured (p. 1). Those children had poorer health status and more untreated health problems than children with insurance. Without treatment, children's medical problems negatively affect their school work and eventually become serious health problems. Oberg (1990) has stated that children are the largest portion of the population which is uninsured. Low socioeconomic status is one of the reasons for being uninsured, however, 35% of the uninsured are 200% above the poverty level (Oberg, 1990, p. 493). The PACE report indicates that about 23% of California's children are uninsured. These children's parent(s) are unable to afford private insurance and do not work at jobs where health insurance is offered (p. 201). Their access to and utilization of health care is unknown due to the dearth of information about the utilization of services by minority population subgroups (U.S. Department of Health and Human Services, 1985, p. 191).

An assessment of the health needs of ethnically diverse preschool children is necessary to identify trends and plan programs to improve the children's success in school. The California Department of Education's philosophy for state-funded preschools is that each preschool develop supporting goals and objectives to facilitate each "child's physical, cognitive, social, and emotional development" (p. 38). Each

program must include an "educational program component that is developmentally, culturally, and linguistically appropriate for the children served" (p. 38). The state supported preschools are mandated to serve (a) children with the lowest income, non-English speaking and limited-English speaking children; (b) children with exceptional needs whose Individualized Education Plan states that the preschool is appropriate for all or part of the school day; and (c) for those children in special circumstances who would benefit from the school experience (p. 32).

Research Question

Children of many different ethnic backgrounds are entering the public school system. This study is in response to the lack of available information in the literature. This study attempts to answer the research question: What are the health needs of low-income, multicultural preschool children? The results of this study will assist in the development of guidelines for planning and implementing a comprehensive health education and services program involving the child, the family, the school, and the community.

Purpose and Significance

The researcher believes school-aged children who have attended a California state-funded preschool program in a northern California school district seem to have more health

concerns and problems than children from all other preschool programs in the community. The Flinn Foundation Report (1989) states that if these health problems are not treated, they will significantly affect these children's educational progress in school (p. 16). The purpose of this study is to assess and describe the health needs of a low-income, culturally diverse sample of preschool children. This study is a variation of Good's thesis (1990) using a sample of 3- to 5-year-old children in a California state-funded preschool program. The results of this survey will be used to develop guidelines for planning effective health education programs and health care services for preschool children. Education programs and services are necessary to improve these children's health status and thereby promote their educational success in school.

Definition of Terms

The following definitions are used in this study:

1. Care is defined as "phenomena related to assistive, supportive, or enabling behavior towards or for another individual (or group) with evident or anticipated needs to ameliorate or improve a human condition or lifeway" (Alexander, Beagle, Butler, Dougherty, Robards, & Velotta, 1989, p. 152; Leininger, 1988, p. 156).

2. Culture is the patterned lifeway of people that influences decisions and actions (Marriner-Tomey, 1989, p. 150).

3. California's Child Health and Disability Prevention Program (CHDP) (1983) is a preventive health program making early health assessments and referrals available to low-income and MediCal-eligible children. Periodic assessments are scheduled from birth to 21 years of age. Health assessments are required within 30 days of enrollment in a State Preschool or a Head Start program. The CHDP assessment form, PM 160 (see Appendix A), is one of the health data collection instruments on which the health data was most frequently recorded.

4. A cumulative record for each enrolled student is required by the California Department of Education. The file contains each student's registration forms, health records, teachers' records, and other pertinent information. The preschool records are saved for 3 years after the student exits the program.

5. Dental assessment is a visual inspection to identify infections of the gums and malocclusions in addition to obvious decayed, missing, or filled teeth.

6. A health need is an abnormal finding noted in a child's health record.

7. Hearing screening is measured using the State of California's Department of Health Services criteria of 20 decibels (dB) for four frequencies, 500 Hertz (Hz), 1,000 Hz, 2,000 Hz, and 4,000 Hz. Results are abnormal if there are two frequencies of 30 dB or more (California Administrative Code, Title 17, Section 2951).

8. Height is measured using a standard non-metric scale. The children remove their shoes for accurate measurement. The height measurements are plotted on a growth chart using the National Center for Health Statistics (NCHS) growth percentiles for boys and girls 2 to 18 years (see Appendix B). Those children whose stature was at and above the 95th percentile were considered overheight for the purposes of this study and coded as abnormal. Those children whose height was at or below the 5th percentile were considered underheight and coded as abnormal.

9. Hemoglobin or hematocrit measurements are used to screen for iron deficiency anemia. Anemia is considered to be present when the hemoglobin concentration is below 11.0 gm/100 ml in boys and girls 6 months to 10 years of age. Anemia is considered to be present when the hematocrit concentration is below 34% in boys and girls 6 months to 10 years of age. Results were coded as normal or abnormal depending on the health care provider's notation of anemia on the health assessment and according to the guidelines of

the Committee of School Health of the American Academy of Pediatrics (1987, p. 214).

10. Immunizations are required by the State of California for attendance in the preschool program (Health and Safety Code, Sections 3380-3390; California Administrative Code, Title 17, Sections 6000-6075). The requirements are diptheria, pertussis, and tetanus (DPT), polio, and measles, mumps, and rubella (MMR). With the signing of AB 2798 in September, 1992, the Haemophilus influenza, type b immunization was added to the list of mandated immunizations. It was not a requirement at the time of this study. The State requires children to have the basic set of DPT and polio immunizations and boosters as recommended by the American Academy of Pediatrics Committee of School Health (1987, pp. 192-193). The MMR is required at 15 months of age. Children should have received all of their immunizations prior to the required health examination. A physician's letter or statement must be attached to the California State Immunization Record (CSIR) record for those children with medical exemptions to the immunization requirement. Parents who choose not to immunize their children based on their personal beliefs may sign the affidavit on the back of the CSIR card.

11. Lifeway is a human condition which Leininger has defined as "a particular patterned way, style, or manner of

living by individuals, groups, or cultures" (Good, 1990, p. 11).

12. Tuberculosis screening is required by the California Department of Health Services (1989) for the control of tuberculosis in California. The intradermal Mantoux test must be administered no more than 12 months prior to or 30 days after attending school. If the test is positive (10 mm. or more of induration), a chest x-ray is required. The facility must inform the County Health Officer within 30 days to determine the need for follow-up care.

13. Vision screening is administered using the Snellen "E" chart to assess visual acuity. For this age group, vision is considered normal from 20/20 to 20/40 in one or both eyes. Results of 20/50 or more are considered abnormal (California State Department of Education, 1984, p. 8).

14. Weight is measured on a standard scale. It is plotted on a growth chart using the National Center for Health Statistics (NCHS) growth percentiles for boys and girls 2 to 18 years of age (see Appendix B). In addition, there is a second chart to determine nutritional status. Weight is expressed relative to children of the same height in percentiles (see Appendix B). Those children whose weight was at or above the 95th percentile were considered

overweight. Those children whose weight was at or below the 5th percentile were considered underweight.

This chapter has discussed the large influx of Asian immigrants which has entered the United States since the immigration laws were changed in 1966. The Hispanic population has also been increasing rapidly due to immigration and a high rate of fertility. There has been a substantial impact on the California public school system as children from these racial and ethnic groups enter school. The health care needs of the Asian and Pacific Island children are related to their lifeways and are not well understood. The purpose of this descriptive study is to assess the health needs of low-income, multicultural preschool children. This study is a variation of Good's unpublished thesis (1990), A needs assessment: The health status of migrant children as they enter kindergarten.

Chapter 2

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Conceptual Framework

Leininger's transcultural nursing care theory forms the framework within which different cultures can best be studied and compared. Her theory is based in anthropology and clinical nursing experience and it has been evolving over the past 30 years. The theory of cultural care diversity and universality is best described as sets of information which explain, describe, and predict in some fashion phenomena that are not clearly understood. The process which is used to study the various aspects of culture is an open, accepting, and evolving inquiry.

The cross-cultural approach provides a broad holistic view of the different aspects of human behavior and how man responds to the differing aspects of his culture. "Health and illness are closely interwoven aspects of man's cultural values, beliefs, and practices" (Leininger, 1970, p. 4). It is essential that the nurse use the evolving body of knowledge from anthropology to understand the cultural factors affecting a person's health and care. Leininger states " . . . care is the essence of nursing and the central, dominant, and unifying feature of nursing" (Leininger, 1988, p. 152). It is the concept of care that best describes, explains, and predicts nursing.

The goal of nursing and the transcultural theory of nursing is "to provide quality care to clients of diverse cultures that is congruent, satisfying, and beneficial to them" (Leininger, 1988, p. 155). There is a need for culture-specific information in order to develop a holistic approach to support, maintain, and improve a person's condition or lifeways so that the care which is provided is pleasing to the client and rewarding to the nurse.

Leininger developed a theoretical model to demonstrate the essential structure of her complex theory of culturally congruent care (Leininger, 1988, p. 157). The model illustrates the comprehensive interrelatedness of the major components such as world view, kinship and social factors, cultural values and lifeways, and educational factors (Figure 1). The sunrise model presents the three nursing care decisions and actions that Leininger feels are necessary for culturally congruent care: (a) cultural care preservation or maintenance, (b) cultural care accommodation or negotiation, and (c) cultural care repatterning and restructuring. Leininger's transcultural care theory is the best theoretical framework to use in formulating culturally specific nursing care decisions and actions in a multicultural environment.

Figure 1
Leininger's Sunrise Model to Depict Theory of Cultural Care Diversity and Universality

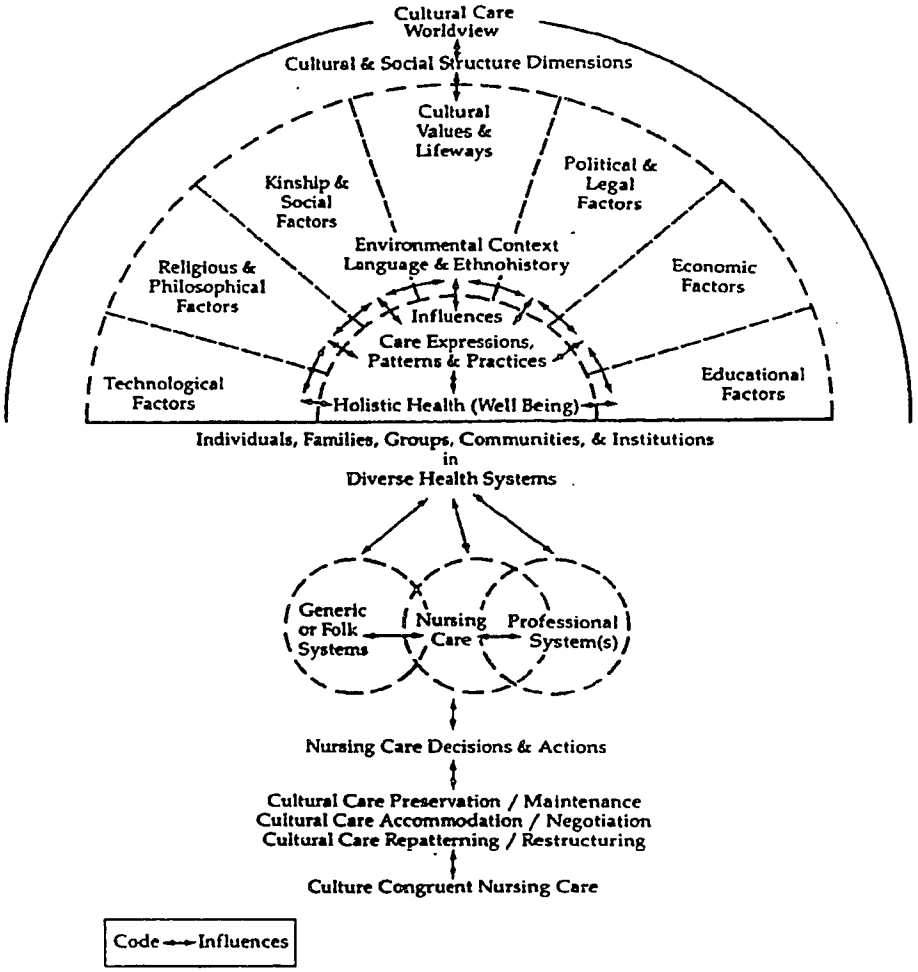

Figure 1. Leininger's Sunrise Model

Note. From Culture care diversity and universality: A theory of nursing (p. 43) by M. M. Leininger, 1991, New York: National League for Nursing Press. Copyright 1991. Reprinted by permission.

Literature Review

There exist only a few studies that address the health needs of children from multicultural backgrounds. The Black and Hispanic populations have been studied more often than other ethnic minorities. In a comprehensive study of the Head Start program, Forsburg (1984) indicated that over half of the preschool children had health problems. Of the children surveyed, 42% were Black, 33% were White, and 20% were Hispanic. The study indicated that the prevalence of health concerns was higher where access to health care was inconvenient or difficult. In support of decreased health care and increased health needs, Forsburg (1984) also confirmed results from prior research consisting of Head Start and non-Head Start children indicating an increased prevalence of health problems in low-income children. There were no significant differences between the children who were in the Head Start program and those who were not in the program with respect to vision, hearing, height, and weight. Approximately 61% had more than one vision problem. Urgent dental care was needed by 1 of 4 children. The children were less likely to have an abnormal hemoglobin or hematocrit; therefore, anemia was not considered to be a significant concern.

In Brown, Sersula, Cains, Godes, Jacobs, Elmer, and Trowbridge (1986), the focus of the study was on the

nutritional status of low-income preschool children (N=566) of different ethnic groups. The Southeast Asians were identified as more at risk for short stature as compared to norms from their own culture and anemia than those of Black, White, or other low-income groups. "Among Southeast Asians, children who were born outside of the United States appear to be at higher risk for short stature, a finding which likely reflects malnutrition experienced prior to immigrating to the United States" (Brown et al., 1986, p. 942). The Southeast Asian foreign born children (n=50) were shorter than those Asian children (n=131) born in the United States; however, the sample was not large enough to be statistically significant. Of note, the overall incidence of anemia did not vary by ethnic background.

Yip, Scanlon, and Trowbridge (1992) noted that there has been a marked increase in stature among Asians between 1980 and 1989. Their stature more closely resembles the stature reflected by the reference statistics of the National Center for Health Statistics (NCHS). Health, nutritional, and socioeconomic factors are the primary reasons for variations among different ethnic groups rather than heredity and genetic factors (p. 940). Vaughan (1992) also confirms Yip et al.'s (1992) findings and stresses that "The NCHS standards should be regarded as reference standards only, and not as belonging to any particular

genetic, ethnic, social, or socioeconomic group" (p. 976). Johnston (1986) emphasizes that the percentile charts are an evaluation of body measurements, the weight for height being of value when looking for obesity (p. 6). "Growth status during childhood is accepted almost universally as the best indicator in field studies of nutritional status" (p. 6) and therefore, in the socioeconomic and cultural environment in which the children belong.

Good's (1990) study was a descriptive survey of Hispanic migrant children's health status as they entered kindergarten. "The purpose of this study was to identify the health needs of migrant children as they enter kindergarten so that programs can be planned to improve their health and educational experience" (p. 7). In the literature review, Good (1990) described the demographics of the migrant population as 12.1 million Mexican-Americans of which one third live in California. Of this migrant population, it has been presumed that a large proportion is school-aged children. Because it is difficult to identify a migrant population precisely, evaluating the population's health status is a complicated task. Good stated, "Few studies address the health status of migrant preschool children; none were found that specifically studied the health status of migrant children at time of entry into kindergarten" (p. 20).

Of the health problems addressed, the most common were nutrition, dental, hearing, vision, and immunizations. Good (1990) concludes that an inadequate diet due to poor cooking facilities and reliance on fast food is highly associated with anemia and with stunted growth and development. Obesity is also a problem which can lead to coronary heart disease, high blood pressure, and diabetes (Altschul, 1987, p. 11; Furino & Munoz, 1991, p. 256). Height and weight are measurements which are commonly used to evaluate whether children receive adequate nutrition (Johnston, 1986, p. 17).

Good (1990, p. 20) also states that poor dental hygiene and dental disease are indicators of inadequate nutrition and the inability of this population to access preventive health care (Trevino, Moyer, Valdez, & Stroup-Beham, 1991, p. 233). Dental care is expensive and migrant families often do not have the money or the insurance to correct oral problems.

Hearing loss is a common problem in the young school-aged population. This problem has a negative effect on education. There is rarely money for expensive medical treatment to correct hearing deficits for those of the low socioeconomic strata. Access to medical care is not always convenient, affordable, accessible, or acceptable. Good (1990) reports that a study of the migrant school-aged

population in Colorado revealed the incidence of vision problems is higher than average in the migrant population. Good stated, "There is a dearth of information to explain the cause of the higher than average incidence of vision problems in migrant school-aged children" (p. 30).

Immunizations which are mandatory for entrance into elementary school in California are DPT, polio, measles, mumps, and rubella. The Haemophilus influenza, type b immunization is not required for entrance into elementary school. Because migrant families move often, their children's immunization records do not follow them closely. In some cases, record keeping is so poor that some children are over immunized and other children are not immunized at all.

Analysis of the data from Good's (1990) study identified four health needs: dental problems, obesity, iron deficiency anemia, and lack of adequate immunizations. The first three are related to nutritional status and are preventable with counseling, exercise, and changes in lifeways. The fourth, lack of adequate immunizations, is also a preventable health condition. California continues to have a measles epidemic. Most of the complications and deaths from the epidemic have been concentrated in the preschool population. This highly contagious disease is easily prevented with adequate immunizations.

Summary

This chapter described Leininger's conceptual framework. There is a need to provide satisfying, beneficial, and culturally specific care for preschool children and their families. Differences in languages, health practices, values, and beliefs are some of the factors which must be considered when working with families from multicultural backgrounds.

A review of the literature shows there is little information on the health status and health needs of Asians and Pacific Islanders. The available information indicates low-income multicultural children tend to have some common health needs. A challenge for health professionals is to integrate culturally congruent care and positive lifeway changes with the differing values, beliefs, and practices of these children and their families.

Chapter 3

RESEARCH DESIGN AND METHODOLOGY

Overview of the Study

Children in a California state-funded preschool program are required to have a health examination on file within 30 days of enrollment. Since all of the children must be qualified as low-income to attend the program, many have the free examination provided by the Child Health and Disability Prevention (CHDP) program. The health assessment may also be provided at no charge to the child's family by a private physician or a clinic. This research study reviewed the cumulative records of students (N=68) enrolled in a state-funded preschool program in a northern California suburban school district. The purpose of the study was to identify the health needs of low-income, multicultural preschool children.

This study was approved by the Human Subjects Review Board of San Jose State University (see Appendix C). Approval for the study was also received from the Director of Instruction and Pupil Services (see Appendix C) of the northern California suburban school district. Consent from Good (1990), author of a previous study after which this study was modeled, also was obtained (see Appendix C).

Research Design

This is a survey of health records of children enrolled in a state-funded preschool located in a suburban northern California school district. The descriptive design was used to determine the health needs of 3- to 5-year-old, low-income, multicultural children who were enrolled in the preschool program for the first time. This research study is a variation of Good's research study A needs assessment: The health status of migrant children as they enter kindergarten (1990). Data were collected from the existing cumulative records between May and December of 1992. The sample was composed of children from families who qualify as low-income families according to the California Department of Education, Child Development Programs' (1989) guidelines. The convenience sample was composed of 68 children between the ages of 3 and 5 years enrolled for the 1991 (n=34) and the 1992 (n=34) school years. Five children were enrolled for both the 1991 and the 1992 school years. Their records were included for the first year (1991) they attended preschool. All records were kept at the preschool site. A data collection tool was used to tabulate demographic information required for enrollment in the preschool program. The codes employed by the school district were utilized (see Appendix D). Data on the health variables investigated were gathered from each student's cumulative

record. The variables included results from dental assessment, vision screening, hearing screening, a test for anemia (hemoglobin or hematocrit), height, weight, and immunizations. For the purposes of this study, a health need was defined as an abnormal finding noted in a child's health record.

The Instrument

The demographic information and health variables for the study were gathered from each child's cumulative record using the Data Collection Tool developed for this survey (see Appendix A). The demographic information gathered from the preschool registration forms which is required by the State of California includes the following:

1. Date of birth which was verified by either a birth certificate, a baptismal record, or a passport supplied by the parents.

2. Ethnicity which was indicated by the parent or identified by the school personnel. The codes are furnished annually to assist with the compiling of the yearly California Basic Educational Data System (CBEDS) report (S. Carmichael, personal communication, December 8, 1992).

3. Primary language which is required by the State was indicated by the parent on the district's language survey form (see Appendix D).

4. The California State Immunization Record (CSIR) form which is completed by school personnel for each child enrolled in the program. The immunization dates are verified by a written record from a recognized health care provider. A physician's letter or statement must be attached to the CSIR for those children with medical exemptions from the immunization requirement. Parents who choose not to immunize their children based on their personal beliefs, may sign the affidavit on the back of the CSIR card (Health and Safety Code Sections 3380-3390; California Administrative Code, Title 17, Sections 6000-6075).

Data on the chosen health variables were gathered from a physical examination record provided to the preschool by the parents. The CHDP PM 160 report was the most frequently used (n=24 or 39%) health examination form (see Appendix C). A physical examination form is a record of the results from an extensive health assessment. Data from the physical examinations were collected in the following categories: dental assessment, vision screening, hearing screening, a test for anemia (hemoglobin or hematocrit), height, weight, and immunizations. Data also were gathered from the school health file for the vision, hearing, and immunization categories.

The variables were coded on the Data Collection Tool (see Appendix A) as normal, abnormal, missing from the record, or refused (by the child or not given by the physician for medical reasons).

1. Dental assessment was reported as normal (no caries) or abnormal (caries present).

2. Vision was reported as normal, abnormal, missing, or refused. The standards set by the California State Department of Education (1984) were applied. Regardless of whether the vision screening was not reported or the child had refused the initial examination, the district school nurse screened the children during the school day. The Snellen Illiterate "E" chart was used to test for acuity. All children were tested even if a vision test was reported on their health assessment.

3. The hearing screening results were recorded as normal, abnormal, missing, or refused using the audiometric standards set by the Department of Health Services (1987)(California Administrative Code, Title 17, Section 2951). The testing was conducted during the school day by the audiometrist employed by the County Office of Education. All children were tested even if a hearing test was reported on their health assessment. Those children who refused were tested individually at another time by the district school nurse, a certified audiometrist.

4. Hemoglobin or hematocrit are blood tests which are used to screen for iron deficiency anemia. When results were available, they were coded as normal or abnormal depending on the health care provider's notation of anemia on the health assessment and the guidelines of the Committee of School Health of the American Academy of Pediatrics (1987, p. 214). Anemia is considered to be present in boys and girls 6 months to 10 years of age when the hemoglobin concentration is below 11.0 gm/100 ml or when the hematocrit concentration is below 34%.

5. Height was recorded on the Data Collection Tool and coded as normal, abnormal, missing, or refused. The height was plotted on the National Center for Health Statistics (NCHS) table and the percentile recorded (see Appendix B). Those children whose stature was at or above the 95th percentile were considered overheight for the purposes of this study and coded as abnormal. Those children whose height was at or below the 5th percentile were considered underheight and coded as abnormal.

6. Weight was recorded on the Data Collection Tool and coded as normal, abnormal, missing, or refused. The weight was plotted on the NCHS table and the percentile recorded. Those children whose weight was at or above the 95th percentile were considered overweight for the purposes of this study and coded as abnormal. Those children whose

weight was at or below the 5th percentile were considered underweight and coded as abnormal. Both the weight-for-age and the weight-for-stature NCHS percentile tables were utilized.

7. The tuberculosis screening test results were recorded as negative or positive. The Mantoux intradermal tuberculosis test is mandated by the Department of Health Services for the State of California (March 2, 1989) to be given within 12 months prior to or 30 days after school entry. If the test is positive (10 mm or more of induration), a chest x-ray is required. The school or day care facility must inform the County Health Officer within 30 days to determine if there is a need for follow-up care if the child's health status has not been indicated by his/her health care provider.

8. Immunizations were reported as given, up-to-date, missing, or refused. According to the Immunization Unit of the Department of Health Services (1989, p. 19) and the Committee on School Health of the American Academy of Pediatrics (1987, p. 192), the schedule of DPT and polio immunizations for normal children is usually completed at the child's 18-month physical examination. The initial MMR is recommended to be given at the 15-month checkup. For the purposes of this study, a child's immunizations were considered incomplete if the first MMR vaccine was given at

the preschool physical examination. The MMR was used as an indicator of immunization status because the DPT and polio immunizations are given in series and it is more difficult to correctly determine if a child's immunizations are up-to-date.

Questions 45 through 60 of the Data Collection Tool (the Designated Instructional Services section) were not addressed for this study.

Data Collection Procedures

The cumulative records of the preschool students were located in the preschool classroom at the elementary school site. The files were reviewed and the data were collected between May and December of 1992. Data were included in the study if the following criteria were met: (a) the child was enrolled in the preschool program for the first time, and (b) the results of a physical examination were on file. Five children were enrolled for both the 1991-92 and the 1992-93 school year. Their records were included for the first year (1991-92) they attended preschool. Twenty-four of the children had their health examinations completed during the school-sponsored CHDP clinic conducted in the fall within one month after enrollment at school. All copies of the clinic's health examination were filed in the cumulative records within 3 months. It was estimated that

there would be 60 participants in this study; at its completion there were 63 in the sample.

Analysis Procedures

Computerized analysis was employed to determine the frequency distribution of the data. Demographics were grouped and presented as percentages.

Chapter 4

ANALYSIS AND INTERPRETATION OF DATA

The purpose of this chapter is to report the results of this descriptive study. The research was initiated in order to identify the health needs of children in a California state-supported preschool. The identified needs will be used to develop guidelines for early intervention and prevention programs. Data were gathered from each student's cumulative record at the preschool site. A Data Collection Tool developed for this study was used to record the information gathered from registration materials, physical examination reports, and the health records.

Computerized coding of the data was used to determine the distribution of the chosen variables. The findings are reported in two parts: demographics of the sample, and report of the health variables.

Demographics of the Sample

The sample was composed of children who attended a California state-funded preschool class for the first time during the 1991-92 and 1992-93 school years. Five children in the 1992-93 school year were second-year students and were not included in the final sample (N=63). There were 34 children who attended school during the 1991-92 school year

and 29 who attended school for the first time during the 1992-93 school year.

The sample (N=63) was composed of 44% (n=28) males and 56% (n=35) females. Table 1 illustrates the ages of these children at the time of their physical examinations.

The ethnic diversity of the sample is reported in Table 1. The following sample profile was recorded using the ethnic codes (see Appendix D) required and supplied by the State of California (S. Carmichael, personal communication, June, 1992). The top 3 categories were Asian 37% (n=23), Hispanic 30% (n=19), and Caucasian 29% (n=18). No Blacks or American Indians attended the preschool during the data collection period. Due to rounding, the total percentage is slightly more than 100%.

The primary language spoken by children in their homes gives a more complete illustration of the sample's ethnic diversity. Twelve different languages were represented. The three most frequently spoken were English 30% (n=19), Vietnamese 21% (n=13), and Spanish 19% (n=12). The language survey codes used by the school district are also supplied by the State (S. Carmichael, personal communication, June, 1992). The distribution of the sample by primary language code is illustrated in Table 1.

Table 1

Demographics of the Sample (N=63)*

Sex	n	%
Males	28	44
Females	35	66

Age at Physical Examination	n	%
3.0	4	6
3.5	12	19
4.0	29	46
4.5	18	29

Ethnic Codes	n	%
Caucasian	18	29
Hispanic	19	30
Black	0	0
Asian	23	37
American Indian	0	0
Filipino	2	3
Pacific Islander	1	2

Primary Language	n	%
Spanish	12	19
Vietnamese	13	21
Cantonese	1	2
Korean	5	8
Mandarin	4	6
Japanese	1	2
Arabic	1	2
Armenian	2	3
Farsi	2	3
Punjabi	2	3
Gujarati	1	2
English	19	30

*Percentage does not equal 100% due to rounding.

Report of the Health Variables

The physical assessments were reported on a variety of record forms by numerous health care providers. Twenty-four children (39%) were examined within 30 days of enrollment during the school district-sponsored health clinic. The CHDP PM 160 Health Assessment form was utilized by the clinic staff. The findings were coded using the State of California standards of normal values. The results were recorded on the Data Collection Tool as normal, abnormal, missing, or refused. See Table 2 for the frequency distribution for each health variable.

Dental

Eighty-six percent (n=54) of the dental assessments were recorded as normal. Obvious dental decay was reported for 13% (n=8) and the children were referred for follow-up. The results of dental screening on one child were missing from the file.

Vision

Vision screening was conducted during the health assessments or at the preschool site during the school day using the Snellen Illiterate "E" eye chart. Eighty-one percent (n=51) of the children were considered within the normal range, 3% (n=2) had abnormal results and were referred for an examination by an eye specialist, and 1 test result was missing. It was notable that 14% (n=9) of the

preschoolers refused to complete the vision test. The children were unable to either understand the test or reliably complete the testing.

Hearing

Hearing screening was conducted on several occasions. If the children were unable to respond reliably, the test was repeated. Eight-seven percent (n=55) of the children were within the normal range, 3% (n=2%) were abnormal and were referred to an ear specialist, 5% (n=3) of the children's reports were missing, and 5% (n=3) refused to comply or were unable to complete the test reliably.

Anemia

Some of the health care providers tested the preschoolers' blood for anemia using hemoglobin tests and other providers used hematocrit tests. There were 68% (n=43) whose hemoglobin or hematocrit test was within the normal range. Thirteen percent (n=8) of the children had anemia diagnosed on their physical examination form. An additional 6% (n=4) of the children had blood values low enough to be considered anemic by the American Academy of Pediatrics. Nineteen percent (n=12) of the children were considered positive for anemia. Three percent (n=2) of the children's reports were missing and 10% (n=6) refused to comply with the testing.

Height

Height was not consistently reported on the examination form sent to the school. Seventy three percent (n=46)of the children were reported as having a normal height for their age. Eleven percent (n=7) of the children had heights recorded as abnormal. Ten percent (n=6) of the children were tall for their age (overheight) while 1 was short statured (underheight). Ten percent (n=6) of the children's heights were missing from their examination reports and 6% (n=4) refused to have their height measured.

Table 2

Report of Health Variables*

Variable	Normal		Abnormal		Missing		Refused	
	%	n	%	n	%	n	%	n
DPT	54	34	44	28	0	0	2	1
Polio	55	35	43	27	0	0	2	1
MMR	79	50	19	12	0	0	2	1
TB skin test	90	57	5	3	3	2	2	1
Anemia	68	43	19	12	3	2	10	6
Dental	86	54	13	8	2	1	0	0
Vision	81	51	3	2	2	1	14	9
Hearing	87	55	3	2	5	3	5	3
Height	73	46	11	7	10	6	6	4
Weight	70	44	14	9	10	6	6	4

*Percentage does not equal 100% due to rounding.

Weight

Weight was inconsistently reported on the physical assessment forms. Seventy percent (n=44) of the children were reported to have a normal weight for their age. Fourteen percent (n=9) of the children were reported to have an abnormal weight. Thirteen percent (n=8) were overweight and 1 was underweight. Ten percent (n=6) of the children did not have their weight recorded and 6% (n=4) of the children refused to be weighed.

Immunizations

All of the immunizations required for entrance to the preschool program are normally completed at a child's 18-month checkup. Fifty-four percent (n=34) of the children had the DPT immunization up to date for their age. Forty-four percent (n=28) of the children were out of compliance and needed a DPT immunization. One child (<2%) was given a medical exemption from the DPT immunization. Fifty-five percent (n=35) of the children had the polio immunization up to date for their age. Forty-three percent (n=27) were in need of a polio immunization. One child (<2%) was given a medical exemption from the oral polio immunization. The MMR immunization is recommended to be given at the 15-month checkup. During the preschool physical examinations, it was determined from the available documentation that 79% (n=50) of the children had their MMR immunization up to date and

19% (n=12) did not. One child (<2%) was given a medical exemption from the MMR immunization during the school-sponsored health clinic. Ninety percent (n=57) of the children had a negative tuberculosis screening test. Five percent (n=3) had an induration of 10 mm or more and were followed up by their health care provider. Less than 3% (n=2) were missing and one child (<2%) was given a medical exemption from the tuberculosis screening test.

When the data were examined, 48% (n=30) of the children were considered to be in good physical condition with no health needs noted by their health care providers (see Figure 2). A health need was defined as an abnormal finding in the children's health records. The remaining 52% of the children (n=33), had one or more health needs identified. Of those, 41% (n=26) had one abnormal finding, 10% (n=6) had 2 abnormal findings, and <2% (n=1) had 5 abnormal results reported in their health records at the preschool site.

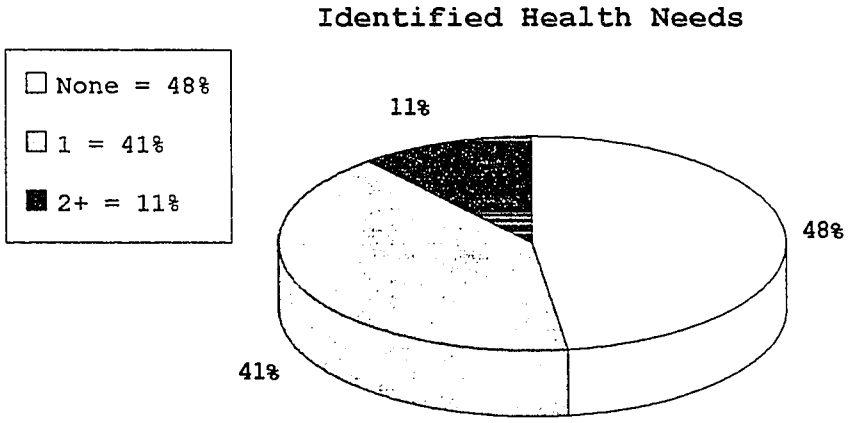

Figure 2. Distribution of Children in Sample in Good Physical Condition and of Children With Health Needs Identified.

The 12 health needs which were identified are listed below in rank order (see Figure 3).

1. Diptheria-Pertussis-Tetanus (DPT)
2. Polio
3. Measles-Mumps-Rubella (MMR)
4. Anemia
5. Overweight
6. Dental
7. Overheight
8. Positive tuberculosis screening test
9. Vision
10. Hearing
11. Underheight
12. Underweight

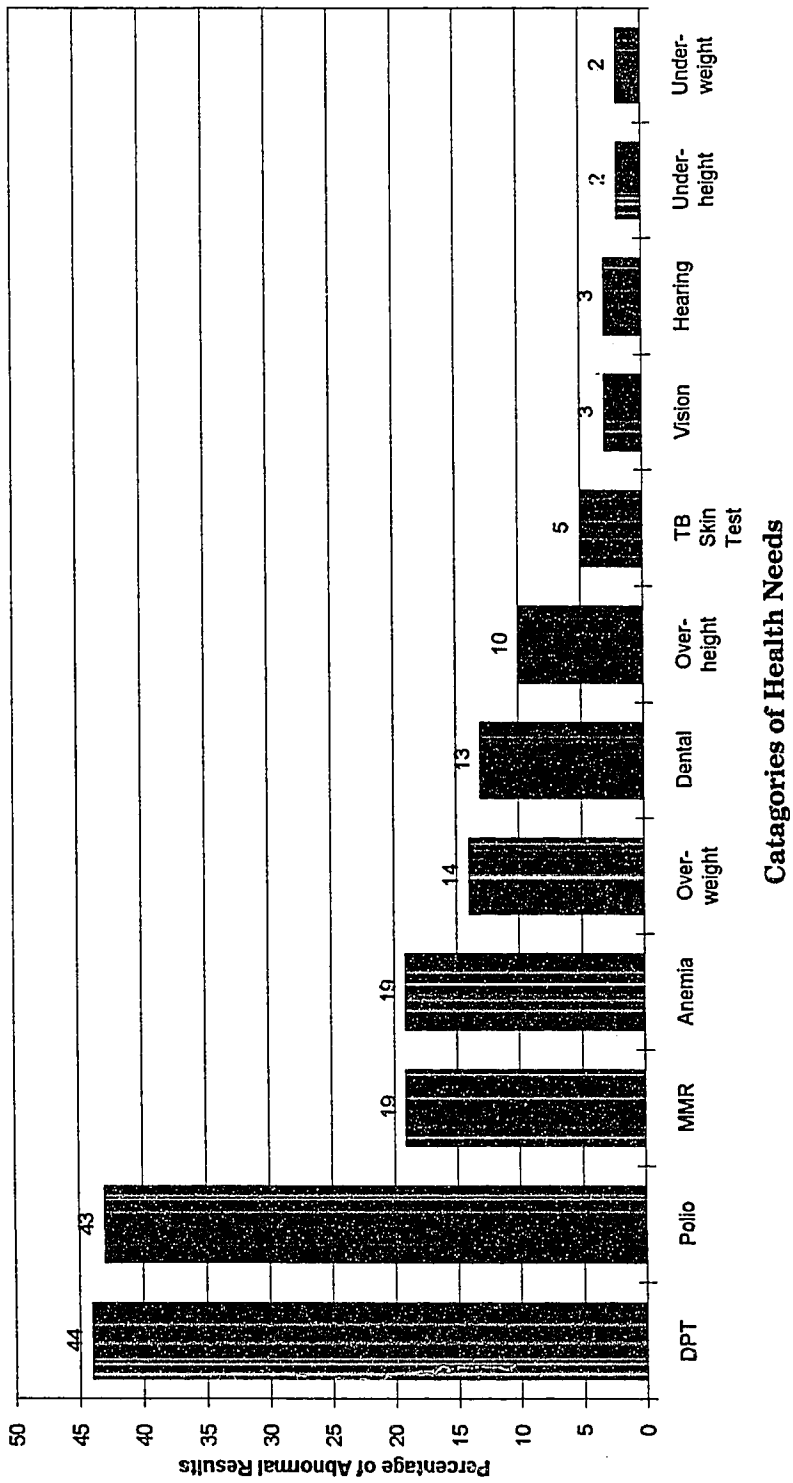

Figure 3. Rank Order of Percentages of Children with Abnormal Health Needs

The data were analyzed using frequency distribution. The identified health needs were then compared to those identified in Good's (1990) research study A needs assessment: The health status of migrant children as they enter kindergarten. The comparison of the health needs is illustrated in Table 3. Good (1990) defined a health need as an abnormal result on the PM 160 health examination form (p. 49). The DPT and polio immunizations as well as the tuberculosis screening test were not evaluated by Good; therefore, for the purposes of this comparison, they are not included.

The purpose of this descriptive study was to identify health needs of children in a low-income, multicultural, state-funded preschool program. The demographics of the sample and the report of the health variables from the Data Collection Tool were presented. When the two studies are compared, the first four variables (immunizations, anemia, overweight, and dental problems) are the same although in differing rank order. Anemia is ranked second as a health need in both studies. The categories are not comparable beyond the top four. Unfortunately, the reporting of tests for anemia, height, and weight were not consistent and valid conclusions could not be drawn. The variables include dental, vision, and hearing assessment, test for anemia

(either hemoglobin or hematocrit), height, weight, and immunizations.

Table 3

Comparison of Rank Order of Health Needs in Preschool Sample (N=63) and Migrant Kindergartners (N=112)

Health Needs	Study Ranking	Multicultural Preschoolers %(n)	Good's Ranking	Migrant Kindergartners %(n)
MMR	1	19(12)	4	17(19)
Anemia	2	19(12)	2	23(26)
Overweight	3	14(9)	1	29(32)
Dental	4	13(8)	3	21(24)
Overheight	5	10(6)	5	4(4)
Vision	6	3(2)	9	1(1)
Hearing	7	3(2)	6	6(7)
Underheight	8	2(1)	8	12(14)
Underweight	9	2(1)	7	4(5)

Chapter 5

DISCUSSION

This chapter includes a summary, conclusions, scope and limitations of the study, and recommendations.

Summary

The research study was conducted in order to identify the health needs of low-income, multicultural preschool children. An assessment of the health needs of ethnically diverse preschool children is necessary to identify trends and to develop guidelines for programs to assist children in improving their success in school. Guidelines will be developed for intervention and prevention health education and service programs to assist children and their families in developing and maintaining healthy lifeways.

This descriptive study reviewed the onsite health and registration records of low-income, multicultural children (N=63) ages 3 to 5 years old enrolled in a California state-funded preschool program for the 1991-92 and 1992-93 school years. The data were obtained from the existing preschool records and recorded on a Data Collection Tool developed for this study. The health needs were identified and ranked according to importance. The results were then compared with those identified in Good's (1990) research study A

needs assessment: The health status of migrant children as they enter kindergarten.

Conclusions

The findings of this descriptive study (see Figure 3) indicate that 48% (n=30) of the children were considered by their health care providers to be physically healthy with up-to-date immunization records. The remaining 52% (n=33) had one or more health needs identified. Of those, 12% (n=7) had 2 or more unmet health needs. The 12 identified health needs are reviewed in descending rank order.

Immunizations

The DPT, polio, and MMR immunizations were the top 3 unmet health needs of these preschool children. Of the children (n=33) who were identified with health needs, 92% (n=30) required at least one immunization. The schedule of immunizations recommended by the American Academy of Pediatrics states that the basic series of 4 DPT and 3 polio immunizations should be completed at the 18-month checkup. The MMR (a single dose immunization) is recommended to be given at the 15-month visit. It was notable that 19% (n=12) of the children obtained their initial MMR immunization at the preschool health assessment. Often the immunizations schedule is unavoidably altered because of common childhood illnesses, access to health care, lack of insurance, or other family problems. Nevertheless, all children should be

immunized with the MMR vaccine before entry into preschool. The Children's Defense Fund recently released the results of a 10-year study of immunization rates (Kurtzman, 1992, p. 5). It stated that children's immunization compliance rates have decreased to under 60% for most of the United States. During the past 2 years, the study reported there has been an epidemic of measles, rubella, and whooping cough which has been centered primarily in the preschool population. In California, the Children's Defense Fund indicated that fewer than 48% of 2-year-olds are fully immunized. This is in contrast to compliance rates of 95% in many developing countries. According to Laura Levin, Coordinator of the Santa Clara County Immunization Assistance Program (personal communication, January 21, 1993), 59% of the county's 2-year-olds were fully immunized in 1992. She stated that this high a compliance rate may be due partially to the high median family income of the county. The 1992 immunization compliance rate for the county's 416 public and private preschools is 95.7%.

Children Now (1991) states that the immunization rate for young children is an important health indicator. The immunization rate is a measure of whether children are getting basic preventive health care or not (p. 21). PACE (1989) indicates that children under the age of 6 should visit a doctor for checkups every year. "Most visits to a

health care provider are for preventive services and routine care of acute conditions such as colds and minor injuries" (p.147). Measles, mumps, rubella, whooping cough, diptheria, and tetanus are considered preventable diseases with adequate immunization. It is important that all children be immunized against these diseases. Immunizing the children limits school absences in addition to preventing unnecessary and possibly fatal complications.

According to Good's (1990) study, 17% of the Hispanic migrant kindergarten students did not have their MMR immunizations (p.64). Good did not measure the DPT and polio immunization rates. With more complete data, the results of the studies might be closer. However, it is important to note that the migrant children in a rural area had a better MMR compliance rate than those children in this study who live in a suburban area where health resources are assumed to be more accessible.

Anemia

Anemia was the fourth ranked health need. This study showed that 19% (n=12) of the children had a low hemoglobin or hematocrit indicating iron deficiency anemia. The results of a hemoglobin or hematocrit test for anemia when grouped together with height and weight are considered reliable indicators of a young child's nutritional status. It has been reported that low-income children have an

increased prevalence of nutrition problems over that of the general population (Brown, 1986, p. 938). However, Forsburg (1984) reported anemia was not a significant problem for the Head Start children. Iron deficiency anemia is a significant indicator of the nutritional status of children and their environment. It is considered a preventable health problem when nutritional counseling is provided. Other than prescribing supplemental iron, no indication of a referral for nutritional counseling was made on the assessment report. It has been postulated (Brown, 1986, p. 943) that anemia in Asian children might be attributed to a change in the traditional diet and sources of iron. It is significant that Good (1990) ranked anemia second as a health concern in the migrant population. However, in this study 22% (n=14) of the children did not have their blood tested or the results were not reported on the health assessment form. The inconsistency of reporting invalidates the significance of the finding. Further study regarding the nutritional well-being of the preschool children and their families is indicated.

Weight

The fifth most notable health need was obesity. For the purpose of discussion, underweight is included in this group. The NCHS sex-specific weight-for-stature tables were used in addition to the weight-for-age percentile charts

(see Appendix B). In this study, 13% (n=8) of the children were overweight for their age. Although the percentage was not as high as for the migrant pre-kindergartners (29%, n=32), excessive weight gain was noted in all ages and both sexes. Whether all of these children can be considered obese (high NCHS weight-for-stature percentile) or tall and muscular needs further investigation. This study's results are similar to those reported for (N=5,170) kindergartners by Kumanyika et al. (1990). When utilizing the weight-for-stature table, a slight increase occurred. The percentage of children who were overweight increased from 13% (n=8) to 14% (n=9). The children's weights were plotted on the table using percentile curves. The children whose weights were equal to or above the 95th percentile were considered overweight. Those children that were at or below the 5th percentile were considered underweight. Only <2% (n=1) of the sample was considered underweight. This is less than 5% of the population which would be statistically anticipated to be below the 5th percentile. Weight of an individual is often a genetically linked trait. Good (1990) and Martorell (1991) both have reported the tendency of the Hispanic population to be short of stature and overweight. There were not enough participants in this study's sample to draw any correlation between data from Good's study and results from this study. McArdle (1981) states there are three

factors that seem to cause obesity: genetic composition, environmental factors, and social influences (p. 405). Childhood obesity and a family history of heart disease are the two most frequent risk factors leading to the development of coronary heart disease (p. 435). Other health risks which can result from overweight include diabetes, arthritis, renal disease, pulmonary complications, and hypertension (p. 406). Obese children also grow and mature more rapidly in all respects when compared to those children who are slender (Faust, p. 64). Overall, height and weight were the least well reported measurements of the study (16% were missing or refused). No valid conclusion concerning these variables can be drawn from the study.

Dental

Dental caries were reported in 13% (n=8) of the children's examinations. It was the sixth most important health need reported by the health care providers. Dental problems were the third ranked health need in Good's (1990) study. In the literature review, dental problems were considered to be the most frequently reported health problem due to the low-income of the migrant population both in California and nationwide. Griffen and Goepferd (1991) state that low socioeconomic status correlates positively with dental caries rates (p. 1210). This category was not strictly recorded on the health examination records. Dental

caries in children are a preventable health problem with the use of sealants, education about brushing, and the use of fluoride.

Height

Overheight was the seventh ranked health need in this study. For the purpose of discussion, overheight and short stature are discussed together. In this study, 10% (n=6) of the children were overheight for their age. Their height was recorded equal to or above the 95th percentile for their age and sex. Less than 2% (n=1) were underheight which was anticipated. This study did not confirm Brown's (1986) findings which reported Southeast Asian children as short in stature. This study concurs with Yip et al. (1992) who concluded that the improvement of growth status of <5-year-old Asian children is related to their nutrition and health factors rather than genetic factors (p. 937). It is best to group height with weight results concurrently as these measurements are indicators of a child's overall health status and they have more significance if viewed at the same time. Falkner (1986) reports that height and weight together are the most frequently taken composite growth measurements. Height measurements that were reported confirmed Yip et al. (1992) and Vaughan's (1992) results. Their findings indicated that the NCHS standards could be used reliably in reference to any ethnic group. In Good's

(1990) study 12% (n=14) of the migrant children are considered short statured. Hispanic males are consistently reported as short statured (Good, 1990; Martorell, 1991; Kumanyika et al., 1990). Overall, height and weight were the least well reported measurements of the study (16% were missing or refused). Since these were not well reported variables, no valid conclusions could be drawn.

Vision

Vision was ranked the ninth health need in this study. The results of the vision screening test indicated that 14% (n=9) were unable to comply with the test requirements. This study's results are similar to Forsburg (1984) who reported that vision acuity abnormalities were more likely to be discovered and treated in Head Start children than in non-Head Start children. This finding is consistent with Good's (1990) results of 11% being incapable of completing the vision screening. The test requires the children to turn their hand the same direction as the "E" on the Snellen eye chart. An understanding of the language and following directions are necessary for this task. Many of the children in the study were unable to understand the directions given in English or to complete the testing even after observing several demonstrations. It is possible that the use of the "Hand Print" chart instead of the "E" chart might increase compliance. The high rate of non-compliance

demonstrates the inability of some children between 3.0 and 4.5 years of age to comply with the test requirements.

Hearing

Hearing was the last ranked of the health variables. The audiometric results are better than the vision results with only 5% (n=3) of the children unable to follow the directions well enough to complete the screening test. Good (1990) reported hearing difficulties as the sixth ranked health need. Compliance with the testing procedures was also a problem. This study (3%) and Good's (6%) did not experience the frequency of chronic hearing problems of the Head Start children (11%) which Forsburg (1984) reported. However, since only two-thirds of the Head Start children were tested, the results might have been closer if all had been included. After repeated demonstrations and individual attention, some children were still unable to follow the directions consistently. The language barrier may have been a factor hindering the children's compliance and understanding. Play audiometry might have been employed. Play audiometry is a technique which has been developed especially for 3- to 5-year-old children. This technique requires specialized personnel training and more time to administer.

Overall the results of this descriptive study suggest a relatively healthy sample (48%) of low-income multicultural

preschool children. Forsburg (1984) reported that half of the children entering Head Start programs had health problems. The high rate of children in need of immunizations suggests parents have a problem with the accessibility (the location of the health care), the affordability (the cost of the health care), the acceptance of or the rejection of health care due to cultural beliefs and values, and/or the quality of the health care available. The acceptance of health care is an unknown unmeasured quantity. Leininger's theory of culturally congruent care which stresses cultural values and lifeways may be the missing significant factor.

Scope and Limitations

This study was limited to the review of existing records at a California state-funded preschool. All of the preschoolers (N=63) between 3 and 5 years of age, who were enrolled for the first time between September 1991 and December 1992, were included.

One of the limitations of the study is the cultural diversity of the sample. The diversity cannot be controlled by either the school district or the preschool administration since the students are selected according to eligibility criteria which define poverty by certain standards and by age criteria. The sample also is limited by the number of openings in the preschool class. Since the

physical examinations are given by numerous health care providers and reported on several different forms, some inconsistencies in health assessment and recording may have developed. Another limitation involves those children with dental problems whose referral for care was not noted on their health assessment form. In addition, it is possible that height and weight measurements as well as tests for anemia, considered missing in this study, may have been performed by the health care provider and not recorded. Screening results were completed by different providers and school nurses further limiting interpretation of the findings. Of the children tested, those who initially refused the vision or hearing screenings were retested again at a later date.

Generalization of this study's results may be valid when compared with those of similar socioeconomic groups.

Recommendations for Future Research

A number of recommendations were generated after reviewing the findings of this study.

1. This study should be replicated to validate the results. In addition, further investigation is needed to determine if the most frequently identified health needs (immunizations, iron deficiency anemia, overweight, and dental problems) of low-income preschoolers and Hispanic migrant pre-kindergartners should be generalized to these

and other low-income populations. Another aspect to investigate would be the differences in the health needs of children born in the United States compared to the needs of those born in another country.

2. Another question to be explored would be the dietary changes families experience when they move to the United States and how this affects their nutritional status. Good (1990) suggests that research on acculturation and its affects on food choices might be explored in addition to further research on whether food choices are culturally based (p. 70). Yu (1992) has proposed a similar recommendation in addition to suggesting that a National Health and Nutrition Survey of Asians (NHANES-Asian) be initiated (p. 1,392).

3. The rate of under immunized children was an unexpected finding of this study. Furthermore, the inconsistency in the reporting of the height and weight measurements was an unexpected result. The anthropometric measurements coupled with a test for anemia are the basic indicators of nutritional and health status for this population. An immediate recommendation is to continue to sponsor the free CHDP health clinic in the fall. Another recommendation would be to provide an accurate measuring device to the preschool and record the results in the children's health record. However, over the long term, the

provision of basic health care for women and their young children must be reevaluated and changes must be aggressively pursued. Health care policy and planning is necessary to determine the basic level of acceptable care and how it can be efficiently delivered through the existing system of public and private hospitals and clinics. Input from professional organizations, the insurance industry, the State, and Federal government is necessary in order to make the revisions in the system palatable to all in the health care industry. Legislative action is needed to resolve the problems of convenient, affordable, and competent health and dental care especially for those using MediCal, the "working poor," and those without insurance. These issues and a multitude of other health related topics are currently the subjects of a national debate focused on providing a basic level of health care to all citizens of the United States.

4. To address the challenge of a multicultural society for health services delivery, non-traditional collaboration and affiliation of public and private community agencies must be explored. According to Tameron Mitchell, Deputy, California Department of Health Services (1993), in order to accomplish this multicultural comprehensive delivery system there are multiple difficulties to overcome. The State is looking to the local community level for innovation in the planning and implementation of comprehensive school-linked

health services delivery. Crossing traditional barriers to create common bonds, forms, referrals for services, and creative financing are just some of the strategies proposed. One model of service delivery is for the school district to provide space for case workers and programs in return for in-kind services for the students. By forming "partnerships", between school districts and local community agencies, coordination and delivery of education, health, and social services to students and their families would be facilitated. Another model program uses a mobile clinic providing outreach in the community. This collaborative effort between the schools, the city, and a children's hospital provides vaccines, primary health care, and referrals in the suburban neighborhoods where access to health care is difficult.

Recommendations for School Nursing Practice

"You can't educate children if they are not healthy, and you can't keep them healthy if they are not educated," stated Dr. Joycelyn Elders, Arkansas Director of Health (1992). The role of the school nurse is to assist the educational progress of the children by promoting a healthy environment and promoting healthy lifeways. The identified health needs in this study can be grouped in two headings:

1. Those that affect the children's health status: vision acuity, hearing thresholds, tuberculosis screening test results, and immunization status.

2. Those that are affected by the children's nutritional status: height, weight, iron deficiency anemia, and dental caries.

Health status of preschool children can be most readily affected by the clinical practice aspect of the school nurse's role. The school nurse promotes the health status of the preschool children by using clinical skills to screen for vision and hearing abnormalities, to monitor anthropometric measurements, and to enforce the school district's "No Shots. No School." immunization policy. Regularly providing immunizations at the school site would greatly ease the problem of accessibility to health care and might increase the average daily attendance in the schools. According to Judith Ressallat, National Association of School Nurses (NASN) representative in Washington, D.C. (1993), by being Medicaid billing agencies, schools could bill for vision and hearing screenings, immunizations, and selected special education services. These are not funds that the schools are currently receiving. The current national debate concerning the best way to deliver health care services continues to identify the schools as a neutral

site for the consolidation and delivery of health care services.

The nutrition status of preschool children can best be addressed by the educator aspect of the school nurse role. One way to provide current health information is by integrating it into the curriculum of the preschool program. The information needs to be tailored to the different language and cultural beliefs, attitudes, and practices of the children and their parents. Providing parents with supplemental information regarding children's health issues (lead poisoning, accidents, etc.), the availability and location of health and dental services can be delivered through parenting classes, the school newsletter, or during individual conferences. Education is an ongoing aspect of the school nurse role.

As a consultant/collaborator, the school nurse must be aware of the quality of the health care and the family's ability to access it. Those children and their families who are low-income are at greater need for care because of the greater number of health risks and probable lack of health insurance. Evaluation and coordination of services to provide free CHDP health examinations on the campus of the preschool program is important. The school nurse needs to consult with those who are planning comprehensive school-linked services in order to facilitate the delivery of

health services to the children and their families in an upper middle class suburban area. Having services available in a location central to the school district after usual work hours and/or on Saturdays would go a long way toward making health care accessible to the neighboring community. Because of the multiple languages represented within the school district, interpreters who work with medical professionals would be an integral part of the program. Parents would be encouraged to take charge of their own and their children's health care while being sensitive to the cultural lifeways of their ethnic group.

The school nurse contributes to the practice of nursing through research. By conducting health assessments and reviewing records, observations can be made regarding quality of care. Trends in health care access can also be followed. As a researcher, the nurse can be pivotal in providing documentation of the health needs in the school population so that services can be targeted to the children who can use them the most. For instance, low-income children are more at risk for dental problems. The school nurse can target those schools and programs where the children with dental problems are located for screening and education by volunteer dentists, dental hygienists, and dental education volunteers.

Leininger stresses that accommodating the cultural diversity of the population is important when planning health care for children and their families. Ignoring cultural beliefs, values, and practices will cause conflict both for the health professional and the educator. This is especially difficult with the multitude of different languages and cultures that are currently represented in California schools. In this study of a group of low-income, culturally diverse preschool children, health needs were identified which affect the children's health status (lack of immunizations) and their nutritional status (iron deficiency anemia, obesity, and dental problems). The resulting task is to find solutions for the identified health needs in a way which is congruent with the health practices, values, beliefs, and multicultural backgrounds of these children, thus promoting their success in school.

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APPENDIX A

Data Collection Forms

CLAIM CONTROL NUMBER • FOR STATE USE ONLY

STAPLE HERE

PATIENT NAME (LAST) (FIRST) (INITIAL) | MEDICAL RECORD NO. | LA. Code | 94 00034505K

BIRTHDATE Mo. Day Year | AGE | SEX F1 M2 | PATIENT'S COUNTY OF RESIDENCE | CODE | TELEPHONE NUMBER | NEXT VISIT Mo. Day Year

RESPONSIBLE PERSON (NAME) (STREET) (CITY) (ZIP) | Ethnic Code | 1-American Indian 2-Asian 3-Black 4-Filipino 5-Hisp. Amer./Hispanic 6-White 7-Other 8-Pacific Islander

CHDP ASSESSMENT

Indicate outcome for each screening procedure

	ID PROBLEM CLASSIFIED √A	CHRONIC DIAGNOSIS, NOT ISSUED √B	Prior to Screening Enter Follow Up Code or Assessment Screen: NEW C	KNOWN D	DATE OF SERVICE Mo. Day Year FEES
01 HISTORY and PHYSICAL EXAM					01
02 DENTAL ASSESSMENT/REFERRAL					
03 NUTRITIONAL ASSESSMENT					
04 ANTICIPATORY GUIDANCE/HEALTH EDUCATION					
05 DEVELOPMENTAL ASSESSMENT					
06 SNELLEN OR EQUIVALENT					05
07 AUDIOMETRIC					07
08 HEMOGLOBIN OR HEMATOCRIT					08
09 URINE DIPSTICK					09
10 COMPLETE URINALYSIS					10
11 TB MULTIPUNCTURE					11
12 TB MANTOUX					12
CODE OTHER TESTS — SEE CODES ON REVERSE SIDE OF LAST PAGE					CODE OTHER TESTS

FOLLOW UP CODES
1. NO DX/RX INDICATED OR NOT NEEDED CARE
2. QUESTIONABLE, RETEST / RECHECK SCHEDULED
3. DX MADE AND RX STARTED
4. DX PENDING/RETURN VISIT SCHEDULED
5. REFERRED TO ANOTHER STANDARD FOR DX/RX
6. REFERRAL REFUSED

REFERRED TO: | TELEPHONE NUMBER

REFERRED TO: | TELEPHONE NUMBER

COMMENTS/PROBLEMS

IF A PROBLEM IS CLASSIFIED THIS VISIT, PLEASE ENTER THIS DIAGNOSIS IN THIS AREA

A ☐ M ☐ | HEIGHT | WEIGHT | BLOOD PRESSURE | HEAD START/STATE PRESCHOOL

HGB | HCT. | BIRTH WEIGHT

Please enter values in the list and provide any information about the child's health which would affect his/her participation in the Head Start/State Preschool Program.

HEAD START / STATE PRESCHOOL

ICD 9 CODES

IMMUNIZATIONS	GIVEN TODAY: CHDP UP TO DATE FOR AGE A	GIVEN TODAY: STILL NOT UP TO DATE FOR AGE B	NOT GIVEN TODAY: ALREADY UP TO DATE FOR AGE C	NOT GIVEN TODAY: REFUSED OR CONTRA-INDICATED D
11 POLIO - ORAL				
12 DPT DI/Td				
13 MMR ☐ MuR ☐ MR ☐				
8 Hib CV				

THE QUESTIONS BELOW MUST BE ANSWERED

1. Patient is Exposed to Passive (Second Hand) Tobacco Smoke. Yes ☐ No ☐
2. Tobacco Used by Patient. Yes ☐ No ☐
3. Counseled About/Referred For Tobacco Use Prevention/ Cessation. Yes ☐ No ☐

PATIENT VISIT (√) ☐ Chdp Patient or Extended Visit ☐ Chdp Visit

TYPE OF SCREEN (√) ☐ Initial ☐ Periodic

TOTAL FEES

PROVIDER OF SERVICE: Name, Address, Telephone Number (Area Code)

PROVIDER NUMBER

1 Enrolled in WIC 2 Referred to WIC
NOTE: WIC requires Ht., Wt. and HGB/HCT

1 PARTIAL SCREEN 2 SCREENING PROCEDURE RECHECK
ACCOMPANIES PRIOR PM 160 DATED

PATIENT ELIGIBILITY 1 ✓ 2 ✓ 3 ✓ | COUNTY | AID | CERTIFICATION NUMBER

If covered by Medi-Cal, enter Medi-Cal I.D. number above AND attach P.A.L. label in shaded area below.
Patient not on Medi-Cal and has no other coverage for these services.
If PM 160 accepted for information only.

MEDI-CAL PROVIDER NUMBER | HEAD START NUMBER

TYPE OF SERVICE IF OTHER THAN ABOVE:

I certify that the screening information is true and complete, and the results explained to child or his parent or guardian. I understand that payment and satisfaction of this claim may from federal or State funds, and that any false claims, statements or documents or concealment of a material fact, may be prosecuted under applicable federal or State law. I also certify that none of the services billed on this form have been or will be billed to Medi-Cal, this client, or other insurance provider.

NATURE OF PROVIDER | DATE

CONFIDENTIAL SCREENING/BILLING REPORT

STATE OF CALIFORNIA-CHILD HEALTH AND DISABILITY PREVENTION PROGRAM
Medi-Cal/CHDP
P.O. Box 15300
Sacramento, CA 95851-1300

COPY 3 - HEALTH ASSESSMENT PROVIDER

Code No._____

DATA COLLECTION TOOL
GARDEN GATE PRESCHOOL
Katy Waugh, RN, Masters Candidate

(Coding: Yes / Positive = 1, No / Negative = 2, Missing = 55, Refused = 66)

1. Last Name:_____First Name:_____Middle:___

2. Student Number:_____3. DOB:___/___/___4.GRADE:_____

5. School Year 19___ 6. SEX: (Male/Female) 1 / 2 ____

7. Born in USA? Y/N 8. Country Code:_____ ____

9. Primary Language:_____10. Ethnic Code: _____ ____

Parents: Years in USA: 11. Mother: _____12. Father:_____ ____

13. Date of P.E:___/___/__ 14. Age: 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5

Dental Caries: 15. Normal Y/N/M/R 16. Referred: Y/N/M ____

Nutritional Assessment Completed: 17. Y/N/M/R ____

Vision: (Snellen) 18. Normal: Y/N/M/R 19. Referred: Y/N/M ____
20. Right Eye: 20/_____ 21. Left eye: 20/____

Hearing: (Screening)
22. Right: Normal Y/N/M/R 23. Left: Normal Y/N/M/R 24. Referred: Y/N/M ____

25. Hemoglobin:_____ 26. Hematocrit:_____g/o

27. Height:_____Normal Y/N/M/R 28. Weight_____Normal Y/N/M/R ____
Height_____percentile Weight_____percentile ____

29. B/P ___/___ Normal Y/N/M/R ____

IMMUNIZATIONS:
Tuberculosis:
30. Mantoux: Neg/Pos /M/R(_____ mm.) 31. Tine : Neg/Pos/M/R ____
Polio:
32. Given: Y/N/M 33. Up To Date: Y/N/M 34. Refused: Y/N/M ____
Diptheria - Pertussis - Tetanus (DPT) or DT:
35. Given: Y/N/M 36. Up To Date: Y/N/M 37. Refused: Y/N/M ____

Code No._____

Measles - Mumps - Rubella (MMR):
38. Given: Y/N/M 39. Up To Date: Y/N/M 40. Refused: Y/N/M ___ ___ ___
41. Booster: Y/N/M ___
Hemophilus Influenza (Hib):
42. Given: Y/N/M 43. Up To Date: Y/N/M 44. Refused: Y/N/M ___ ___ ___

DESIGNATED INSTRUCTIONAL SERVICES: If "Yes", indicate beginning date of service (ex. 5/93); if "No", indicate date of termination; "Missing" indicates not being serviced.

45. School Readiness Program: Y__/__ N__/__ M/R ___ ___ ___

46. Resource Specialist: Y__/__ N__/__ M/R ___ ___ ___

47. Special Day Class: Y__/__ N__/__ M/R ___ ___ ___

48. Speech: Y__/__ N__/__ M/R ___ ___ ___

49. Nurse: Y__/__ N__/__ M/R ___ ___ ___

50. ISHC SERVICE: Y__/__ N__/__ M/R ___ ___ ___

51. Personal (1:1) Aide: Y__/__ N__/__ M/R ___ ___ ___

Tympanogram : 52. Normal Y/N/M/R ___

Audiogram: Right Ear: (Hz) 53. 500_____54. 1000_____55. 2000____56. 4000____

Left Ear: (Hz) 57. 500_____58. 1000_____59. 2000_____60. 4000 ___

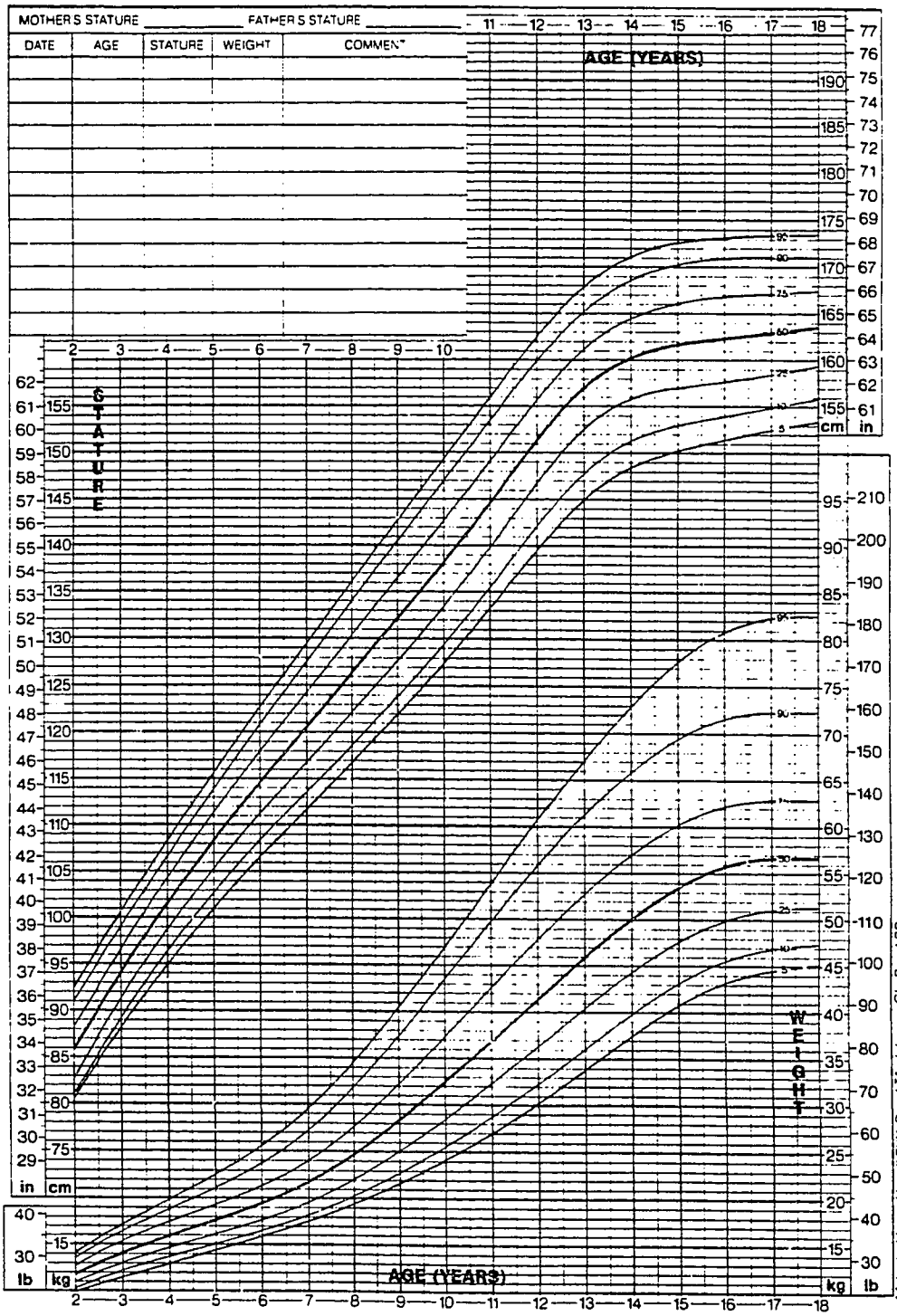
COMMENTS:

APPENDIX B

Sample Growth Charts

GIRLS: 2 TO 18 YEARS
PHYSICAL GROWTH
NCHS PERCENTILES*

NAME _____ RECORD # _____

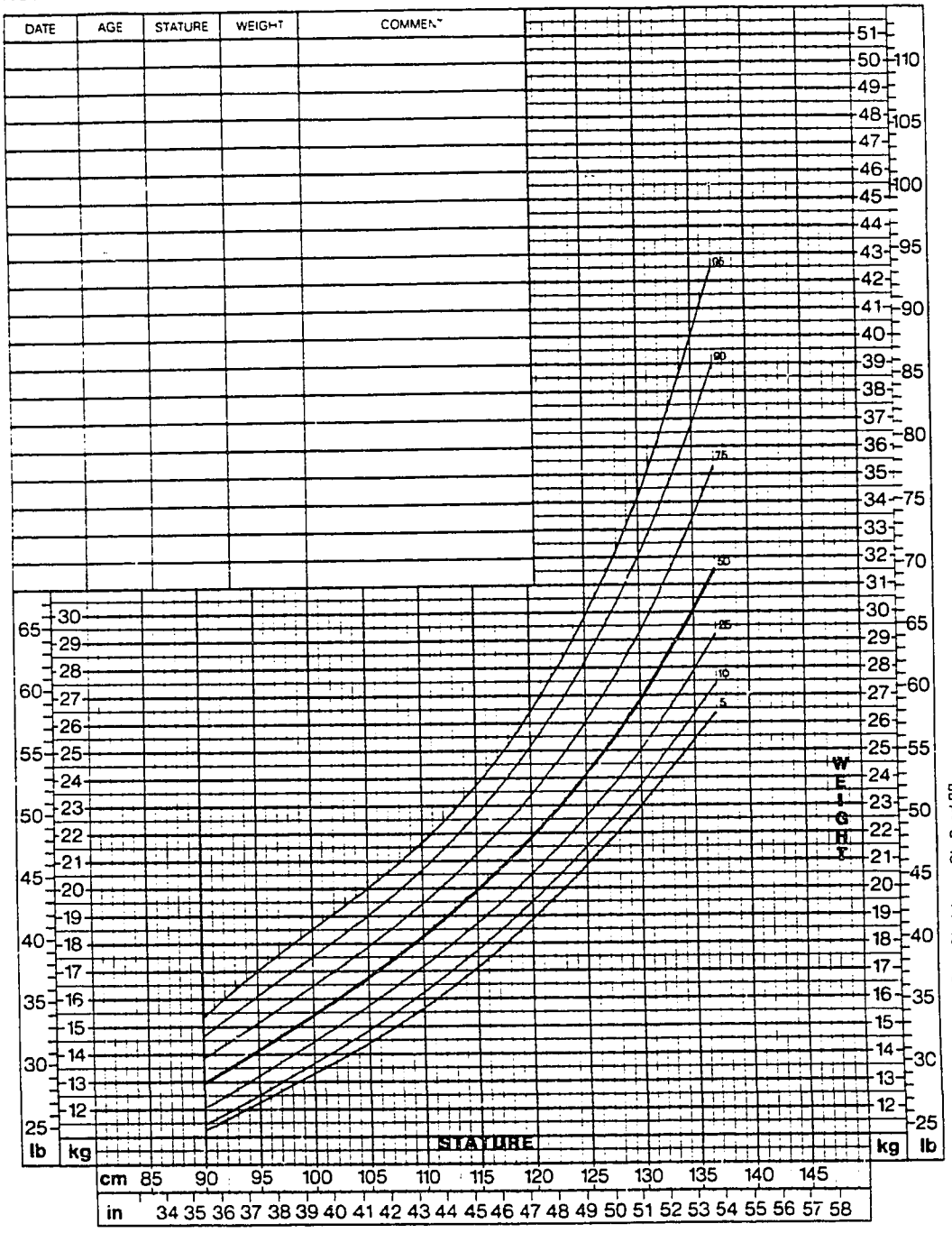


Ross Growth & Development Program

*Adapted from Hamill PVV, Drizd TA, Johnson CL, Reed RB, Roche AF, Moore WM. Physical growth National Center for Health Statistics percentiles. AM J CLIN NUTR 32:607-629, 1979. Data from the National Center for Health Statistics (NCHS) Hyattsville, Maryland

GIRLS: PREPUBESCENT
PHYSICAL GROWTH
NCHS PERCENTILES*

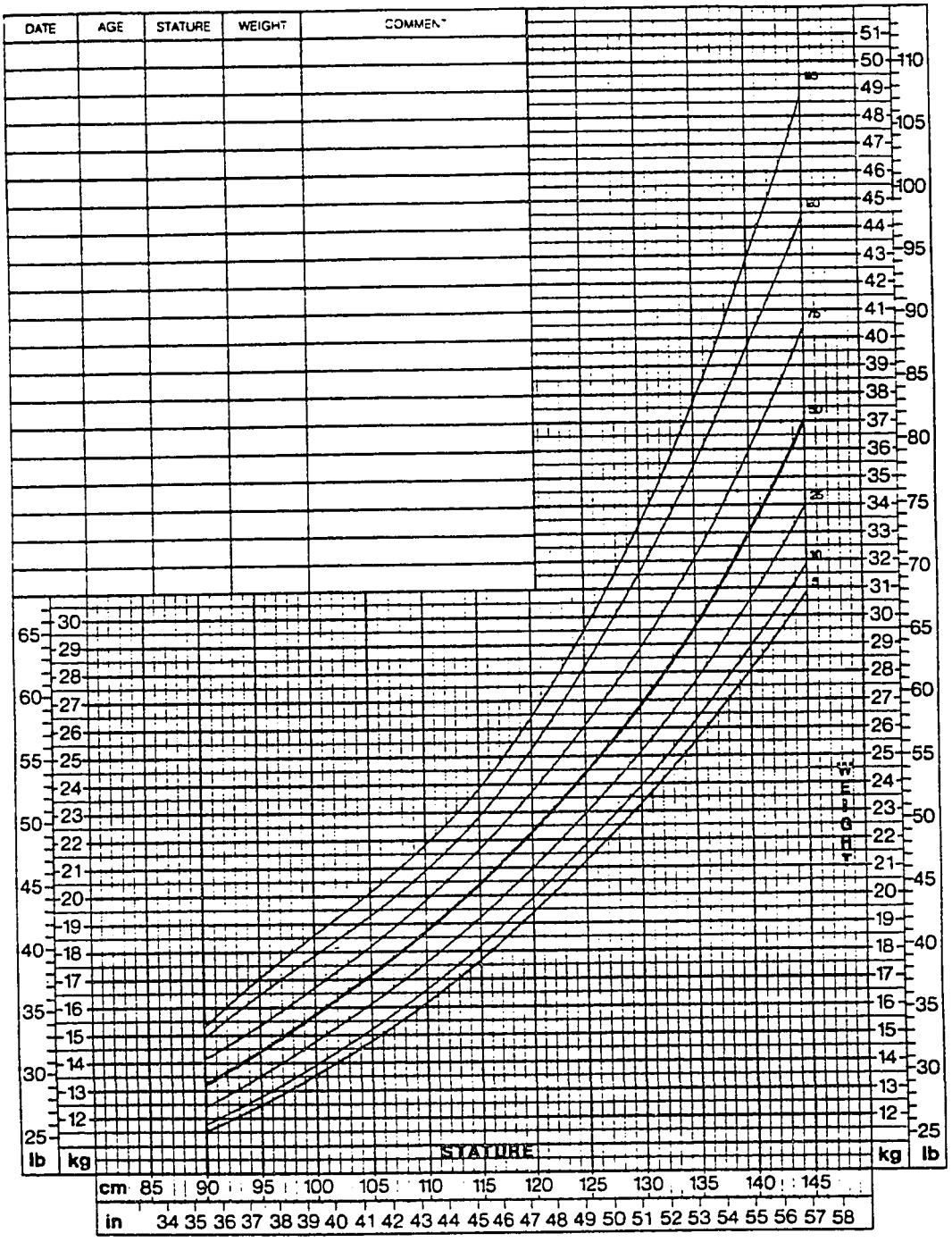
NAME _____ RECORD # _____



*Adapted from Hamill PVV, Drizd TA, Johnson CL, Reed RB, Roche AF, Moore WM: Physical growth: National Center for Health Statistics percentiles. Am J Clin Nutr 32:607-629, 1979. Data from the National Center for Health Statistics (NCHS), Hyattsville, Maryland

BOYS: PREPUBESCENT
PHYSICAL GROWTH
NCHS PERCENTILES*

NAME _____ RECORD = _____

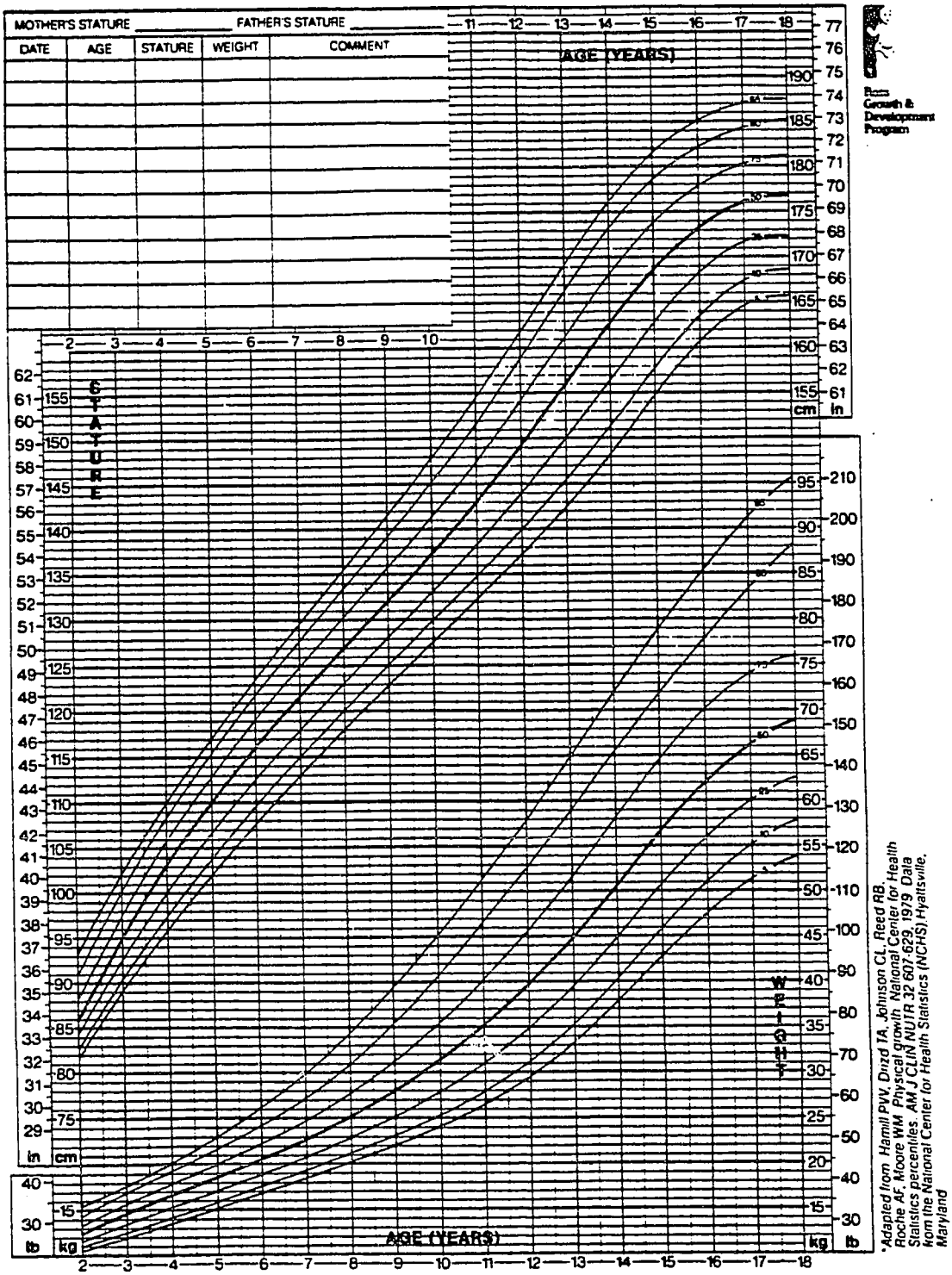


*Adapted from Hamill PVV, Drizd TA, Johnson CL, Reed RB, Roche AF, Moore WM. Physical growth: National Center for Health Statistics percentiles. AM J CLIN NUTR 32:607-629, 1979. Data from the National Center for Health Statistics (NCHS), Hyattsville, Maryland.

ROSS LABORATORIES
COLUMBUS OHIO 43216
51212 09892WB
(0 051/NOVEMBER 1991
LITHO IN USA

BOYS: 2 TO 18 YEARS
PHYSICAL GROWTH
NCHS PERCENTILES*

NAME _____ RECORD # _____



*Adapted from Hamill PVV, Drizd TA, Johnson CL, Reed RB, Roche AF, Moore WM. Physical growth: National Center for Health Statistics percentiles. AM J CLIN NUTR 32:607-629, 1979. Data from the National Center for Health Statistics (NCHS), Hyattsville, Maryland.

APPENDIX C

Approval Letters

SAN JOSE STATE UNIVERSITY

A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San José, California 95192-0025 • 408/924-2480

To: Katherine M. Waugh, Nursing
22293 DaAnza Circle North
Cupertino, CA 95014-3950

From: Serena W. Stanford
AAVP, Graduate Studies and Research

Date: April 20, 1992

The Human Subjects-Institutional Review Board has reviewed and approved your request for exemption from Human Subjects Review for the proposed study entitled:

"Needs Assessment: The Health Needs of Children in a California State Funded Preschool"

You may proceed with this study without further review by the Human Subjects-Institutional Review Board.

I do caution you, however, that Federal and State statutes and University policy require investigators conducting research under exempt categories to be knowledgeable of and comply with Federal and State regulations for the protection of human subjects in research. This includes providing necessary information to enable people to make an informed decision regarding participation in your study. Further, whenever people participate in your research as human subjects, they should be appropriately protected from risk. This includes the protection of the confidentiality of all data that may be collected from the subjects. If at any time a subject becomes injured or complains of injury, you must notify Dr. Serena Stanford immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised when people participate in your research as human subjects, each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have questions, please contact me at 408-924-2480.

CC: Virginia Young, Nursing

SJSU SAN JOSE STATE UNIVERSITY

A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San José, California 95192-0025 • 408/924-2480

To: Katherine M. Waugh
22293 De Anza Circle, North
Cupertino, CA 95014-3950

From: Serena W. Stanford Serena W. Stanford
AAVP, Graduate Studies & Research

Date: November 13, 1992

This letter acknowledges that the Human Subjects-Institutional Review Board has received the following changes to your proposed study entitled:

"Needs Assessment: The Health Status of Children in a California State Funded Preschool"

1. That the title of the protocol should be changed to the following:

"A Health Needs Assessment of Children in a California State Funded Preschool"

Since there have been no further changes to the protocol, the Human Subjects-Institutional Review Board has granted this project a one-year extension effective from the date on this letter.

If you have any questions, please contact me at 408-924-2480.

Cupertino Union School District

Superintendent Patricia A. Larrson
Board of Education Joan C. Barram
Michael S. Chang
Steven C. Chell
Sandra L. James
Tommy G. Shwe

10301 Vista Drive • Cupertino, CA 95014-2091 • (408) 252-3000 • Fax (408) 255-4450

March 19, 1992

Dr. Virgil Parsons
Chair, Department of Nursing
San Jose State University
1 Washington Square
San Jose, CA 95192-0057

Dear Sir:

As Director of Instruction and Pupil Services, I wish to inform you of my intent to cooperate with Katherine Waugh in her research study.

Katherine has my permission to collect data from health exam and primary language survey records of preschool students during the 1991-1992 school year. There are about 32 children currently enrolled in the California State Preschool program. Katherine will be gathering data already in existence in the school cumulative records.

I support Katherine in this study because the information it will produce will better enable us to plan health services for both preschool and kindergarten students. We are currently serving this population and would benefit from identifying and clarifying their health needs. The research findings will also provide us with data to plan health education for the multicultural families that their children can achieve optimal health. We recognize that if a student is not healthy, education is adversely affected.

Katherine has been employed as a School Nurse by the Cupertino Union School District since September, 1986. She has demonstrated her ability to effectively, and sensitively manage confidential records.

We look forward to the completion of this study and feel that the information will enable us to better assist our students to achieve their optimum potential in school. If you have any questions about the research, please contact me at 252-3000 extention 446.

Sincerely,

James Paul, Director
Instruction and Pupil Services

March 22, 1991

Ms. Katy Waugh RN
22293 De Anza Circle N
Cupertino, CA 95014

Dear Katy,

It is with pleasure that I give you permission to use my thesis entitled "A Needs Assessment: The Health Status of Migrant Children as They Enter Kindergarten" to assist you in your work and research. You have my permission to replicate my study, or to modify it to meet your demands. If I can be of any assistance, please feel free to contact me at:

Mary Ellen Good
2355 NW Estaview Circle
Corvallis, OR 97330
(503) 757-2342

Best of luck to you in your studies!

Sincerely,

Mary Ellen Good, RN, MS, MPH

APPENDIX D

Ethnic and Language Codes

Language Survey Form

Ethnic Codes Used by CUSD

1. Caucasian
2. Mexican American / Hispanic
3. Black
4. Asian
5. American Indian
6. Filipino
7. Pacific Islander

Language Codes

Code	Language	Code	Language
11	Arabic	08	Japanese
12	Armenian	04	Korean
13	Burmese	10	Lao
09	Cambodian (Khmer)	07	Mandarin
03	Cantonese	44	Mien
14	Croatian	88	Native American
15	Dutch	99	Other
90	English	06	Portuguese
16	Farsi (Persian-Iranian)	28	Punjabi
05	Fillipino/Tagalog	45	Romanian
17	French	29	Russian
18	German	30	Samoan
19	Greek	31	Serbian
20	Guamanian	01	Spanish
43	Gujarati	46	Taiwanese
21	Hebrew	32	Thai
22	Hindi	34	Tongan
23	Hmong	33	Turkish
24	Hungarian	35	Urdu
25	Iiocano	02	Vietnamese
26	Indonesian	36	Visayan
27	Italian		

March 20, 1992

FAMILY MEMBERS

PARENTS' NAMES

NAME	SEX

SIBLING NAMES

NAME	SEX	AGE

LANGUAGE

In what country were you (the parent) born? _____

How long have you been in the U.S.A.? _____

What language does your child speak at home? _____

If English is not spoken at home -

Does your child speak English? _____

How well? _____

Does your child understand English? _____

How much? _____

PARENT STATUS

Is either parent a student? If yes, give name(s):

Is either parent working? If yes, give name(s):